some important aspects of the emergence of modern science. If the book could be made available as an inexpensive paperback it could be very useful for students. In its present form it can be recommended as a valuable addition to the bookshelf of the scientist who recognizes the historical dimension of his profession or, through commendable curiosity, seeks some insight into the ideas of those who unlocked the gates to the modern world.

MAURICE CROSLAND

D'ALEMBERT'S ENLIGHTENMENT

Jean d'Alembert

Science and the Enlightenment. By Thomas L. Hankins. Pp. viii + 260. (Clarendon: Oxford; Oxford University: London, June 1970.) 70s.

THIS book is the first full-size study of one of the most influential personalities of the French enlightenment, who is also a major figure in the history of mathematical physics. There has been no lack of able investigations of particular aspects of this colourful period of French history, but nobody so far has had the pluck to attempt a synthetic account of the encyclopaedist's achievements in the field of science. For the successful accomplishment of this task we have to thank the flourishing American school of history of science, which combines rigour of method and soberness of judgment with unequalled efficiency in collecting and handling material evidence.

Jean d'Alembert is a revised version of a doctoral thesis, and it inevitably exhibits, together with the solid qualities of the school, the usual imperfections of the beginner's effort. The author has absorbed an incredible amount of information and not quite digested it: the presentation of his findings would gain by pruning and his style by more directness and a lighter touch. All his reading of the pithiest writings of which French literature can boast has not affected his own clumsy rendering of their contents; and disgraceful mistakes in unchecked French quotations reveal that French grammar may be as tricky as French wit is inimitable. Such minor blemishes, however, do not detract from the general excellence of the work. In the first place, the abundant and accurate bibliography, the wealth of well-ordered material (some of which is published here for the first time), the completeness and thoroughness of the discussion will give the book lasting value as a work of reference, not only about d'Alembert, but about his times and the history of the problems he investigated. Apart from this more technical aspect, the author's survey of his hero's thinking and achievements makes fascinating reading.

For all his weaknesses—compared with Euler's supreme virtuosity—d'Alembert ranks as one of the founders of the modern methods of mathematical physics, which were developed to exquisite perfection by his immediate disciples, Lagrange and Laplace. (Excellent reprints of d'Alembert's principal scientific works are available, incidentally, from Editions Culture et Civilisation, Bruxelles.) Still more important is the part d'Alembert played, together with Diderot and Condillac, in laying the epistemological foundations of science, its "metaphysics", as they called it then. On all these points, Hankins, even when he is not very original, has interesting views, always supported by first-hand evidence. Especially valuable is his analysis of d'Alembert's indebtedness to Descartes through the channel of Malebranche (and not, of course, through the diehard Cartesians of strict observance). He also throws light on the deep-seated difference between d'Alembert and Diderot on the question of the significance of mathematics for natural science—still a bone of contention today among theoretical physicists.

As regards the controversial problems raised by d'Alembert's *Traité de Dynamique*—his elimination of

the concept of force, his summary dismissal of the *vis viva* dispute as a verbal quarrel, his way of handling infinitesimals—he does not shrink from the difficult task of retracing their history in order to establish d'Alembert's position with respect to the views of his predecessors; surprising as this may seem, he is here breaking new ground—so much is written, so little known about the course of Newton's or Leibniz's thinking on dynamics! Hankins should therefore not be blamed if his discussion at this point makes a somewhat sketchy impression: it gives at any rate a most instructive first orientation. Altogether, what the book lacks in brilliance is more than made up by the careful and intelligent treatment of its ambitious programme: it does draw a convincing portrait of d'Alembert.

L. ROSENFELD

A GENTLEMEN'S HOBBY

The Common Scientist in the Seventeenth Century

A Study of the Dublin Philosophical Society, 1683–1708. By Theodore K. Hoppen. Pp. xii + 297. (Routledge and Kegan Paul: London, October 1970.) 55s.

IT is useful to be reminded that great things start from small and obscure beginnings; and that this is as true of science as of anything else. It is by now well known to historians that the Royal Society itself was a fragile thing in its early days. Newton rescued it and made it a club fit for gentlemen, but the sort of Royal Society we would recognize now was, as the term "scientist" itself, a creation of Victorian times. In this work, T. K. Hoppen recounts the history of a society that never managed to strike roots. It was, in fact, a brave venture by William Molyneux and a few lesser *virtuosi* in Dublin. It died when Molyneux's interests were diverted, and flickered briefly into life again when his young nephew Samuel had a temporary interest in philosophy.

Whether there was then a "common scientist" is a question of some significance for the history of the period. It is true that there were no giants among the Dubliners. Their contributions are the common sort of gentlemen's amateur natural history, experimental philosophy, mechanical arts and medical experience, that filled all the "philosophical" journals of the time. But the failure of the ordinary members even to keep the society going is significant. It cannot be blamed on the colonial situation of Dublin, for the parallel society in Oxford fared no better. They were not "scientists" but gentlemen with a hobby; and the realization of Bacon's great dream was largely in the hands of such men, in Britain at least, until the industrial revolution.

J. R. RAVETZ

NEOLITHIC BURIAL MOUNDS

The Earthen Long Barrow in Britain

An Introduction to the Study of the Funerary Practice and Culture of the Neolithic People of the Third Millennium BC. By Paul Ashbee. Pp. xvi + 208 + 24 plates. (Dent: London, September 1970.) 126s.

EARTHEN long barrows were first studied as an archaeological category by John Thurnam in 1868, in his famous paper in *Archaeologia* entitled "On Ancient British Barrows, especially those of Wiltshire and the adjoining Counties. Part I: Long Barrows". Since then there have been many general studies such as that of Piggott, and regional studies such as those of Crawford, Grinsell, and Phillips; but it is not until this present book that we have been given a detailed and complete account. Mr Ashbee, who has already given us *The Bronze Age Round Barrow in Britain* (1960), and *The Fussell's Lodge Long Barrow* (1966), now puts us further in his debt with this